REMARKS

The present amendment is in response to the Office Action dated August 24, 2004, where the Examiner has rejected claims 1-14. By the present amendment, claims 1-14 are amended, and claims 15-20 are added. Accordingly, claims 1-20 are pending in the present application. Reconsideration and allowance of the pending claims in view of the amendments and the following remarks are respectfully requested.

A. Rejection of Claims 1-14 under 35 U.S.C. §102(b)

The Examiner rejects claims 1-14 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,020,787 to Kim et al. (hereinafter "Kim"). Applicant hereby traverses the Examiner's rejection.

To anticipate a claim under 35 U.S.C. sections 102(a), (b), or (e), the reference must teach every element of the claim. (See MPEP 2131.) "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." (Emphasis added) (Verdegaal Bros. v. Union Oil Co. of California; see also MPEP 2131.) "The identical invention must be shown in as complete detail as is contained in the ... claim." (Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); see also MPEP 2131).

Further any claim depending from base claims not anticipated or made obvious by the prior art also are not anticipated or made obvious by the prior art since the dependent claims comprise all of the elements of the base claims.

Kim does not teach each and every element of the independent pending claims 1, 8 and 15. Thus, Applicant respectfully requests that the Examiner issue a notice of allowance for all of the pending claims.

a. Independent claim 1, and dependent claims 2-7

Independent method claim 1 is not anticipated in view of Kim since Kim fails to teach or suggest each and every element of independent claim 1. Specifically, claim 1 comprises, among other things, "a low noise amplifier

matching circuit comprising a ferro-electric tunable component, having a ferro-electric material with an electrically tunable dielectric constant". Applicant respectfully asserts that Kim does not teach at least (1) a low noise amplifier matching circuit and (2) a ferro-electric material with an electrically tunable dielectric.

Regarding the claimed low noise amplifier matching circuit, the Office Action states, referring to Kim, that "amplifier 304 can be read as a low noise amplifier (see spec. col. 2, lines 52-55)". Kim, at col. 2, lines 52-55 states "Alternatively, a voltage variable capacitor could be placed before the power amplifier to compensate for input impedance variation and to improve other power amplifier parameters such as IM, gain, output power and noise level." Applicant asserts that the above quote from Kim does not teach that amplifier 304 could be a low noise amplifier.

Noise level of a power amplifier is an important parameter, but concern with the noise level of a power amplifier does not make the power amplifier a low noise amplifier. Noise level of a power amplifier typically refers to out of band noise. That is, it is advantageous to reduce the amount of out of band noise generated by a power amplifier. Noise figure, which is a term usually used in conjunction with low noise amplifiers, refers to in band noise. It is commonly necessary to minimize in band noise generated by a low noise amplifier in order to better receive the wireless communication signal.

There are several general differences between a low noise amplifier and a power amplifier. First, a power amplifier typically produces much more power than a low noise amplifier. Second, a low noise amplifier is typically used in the receive chain of a transceiver, whereas a power amplifier is typically used in the transmit chain of a transceiver. Third, a low noise amplifier typically minimizes the noise figure in the band of interest, whereas a power amplifier typically minimizes out of band noise. Fourth, a low noise amplifier typically has significantly less stringent requirements on efficiency than a power amplifier, since the power levels are much lower in a low noise amplifier than in a power amplifier. Fifth, low noise amplifiers and power amplifiers typically have different

gain requirements. Sixth, low noise amplifiers typically must internally filter out second or third order harmonics much better than power amplifiers. One or more of these differences and others not mentioned are generally accomplished by different biasing schemes and different transistor types and topologies. For example, since a power amplifier typically must produce more gain than a low noise amplifier, power amplifiers typically have more transistors. Thus, the amplifier 304 of Kim cannot be read as a low noise amplifier.

Regarding the claimed "ferro-electric tunable component", as claimed in claim 1, the Office Action states "VVC circuit 506 which has variable capacitor 812 can be read as a ferro-electric tunable component (see spec. col. 4, lines 46-48)". Applicant has amended claim 1 to state that the ferro-electric component has a "a ferro-electric material with an electrically tunable dielectric constant." The ferro-electric material with an electrically tunable dielectric constant distinguishes claim 1 from Kim. Kim states:

> The preferred voltage variable capacitor is disclosed in U.S. Pat. No. 5,137,835 (sic), filed Oct. 15, 1991 (application Ser. No. 775,111) by Kenneth D. Cornett, E.S. Ramakrishnan, Gary H. Shapiro, Ramond M. Caldwell and Wei-Yean Howng, the entire patent of which is incorporated herein by reference. However, any capacitor using a ferroelectric material which provides variable capacitance can be used.

Kim at col. 4, lines 41-47.

U.S. Pat. No. 5,173,835 to Cornett et al. (hereinafter "Cornett") teaches a voltage variable capacitor. See Cornett, Fig. 1 and col. 2, line 47 to col. 4, line 14. But the voltage variable capacitor 10 of Cornett is very different from the ferro-electric capacitors and inductive elements described in the specification of the present invention and as claimed.

Specifically, Cornett describes varying the charge density in a semiconductor as the means for varying the capacitance. A high dielectric constant insulating layer 16 is used to increase the tunability of the capacitor 10, but varying the dielectric constant 16 of the insulating layer 16 is not contemplated. Cornett does state that ferro-electric materials can be used for the insulating layer 16, but even in that case, Cornett teaches that varying the charge density of the semiconductor is the means for tuning the capacitance of the capacitor 10. Cornett at col. 4, lines 15-31. Thus, neither Cornett nor Kim teaches the claimed "ferro-electric material with an electrically tunable dielectric constant". Rather, Cornett tends to teach away from the use of ferro-electric materials.

Even though Kim states that any capacitor using a ferroelectric material which provides variable capacitance can be used, Applicant asserts that this statement refers to Cornett's statement that ferro-electric materials are "not desirable for high frequency devices" Cornet at col. 4, lines 16-17. While Kim may teach that it is acceptable to use a ferro-electric material as the insulating layer in a voltage variable capacitor that varies the capacitance by varying the charge density in a semiconductor, Kim does not teach that the dielectric constant of the ferro electric material is varied in order to vary the capacitance. Neither Kim nor Cornett mention varying the dielectric constant of the ferro-electric material.

Applicant respectfully asserts that Claim 1 is patentably distinct from the cited referenced for at least the reasons stated above. Claims 2-7 enjoy all of the distinctions over the prior art as independent claim 1, from which they depend.

b. Independent claim 8, and dependent claims 9-14

Claim 8 is not obvious in view of Kim at least since Kim fails to teach or suggest each and every element of claim 8. Specifically, claim 8 claims all of the limitations of independent claim 1. Thus, claim 8 enjoys all of the distinctions over the cited references described above with respect to claim 1. Claims 9-14 enjoy

all of the distinctions over the prior art as independent claim 8, from which they depend.

c. Independent claim 15, and dependent claims 16-20

Independent method claim 15 is not anticipated or obvious in view of the cited references since the cited references fail to teach or suggest each and every element of independent claim 15. Specifically, claim 15 comprises method steps corresponding to the patentable features of device claim 1, as described above. Claims 16-20 enjoy all of the limitations of claim 15, from which the depend. Accordingly, claims 15-20 are patentably distinct from the cited references.

Applicant respectfully requests that the Examiner issue a notice of allowance for claims 1-20.

B. Additional Cited References

Applicant has reviewed the additional cited references of U.S. Patents # 6,101,102 of Brand et al., # 3,739,299 of Adler and # 6,054,908 of Jackson. Applicant asserts that the claimed invention is patentably distinct from the subject matter taught or suggested by the cited references.

C. Conclusion

Applicant asserts that the pending claims are not anticipated under 35 U.S.C. 102(d) or obvious under 35 U.S.C. 103(a) in view of the cited references. Thus, Applicant respectfully requests that the Examiner issue a notice of allowance for all of the pending claims 1-20.

Should the Examiner believe that prosecution of this application might be expedited by further discussion of the issues, he is invited to telephone the attorney for Applicant at the telephone number listed below.

Respectfully submitted,

Dated: Nov. 24, 2004

By: _____

Kathleen L. Connell
Attorney for Applicant
Registration No. 45,344

KYOCERA WIRELESS CORPORATION
10300 Campus Point Drive
San Diego, California 92121
Telephone: (858) 882-2169
Facsimile: (858) 882-2485